



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Sharan et al.

Serial No.: 09/825,612

Filed: April 3, 2001

For: METHOD FOR PECVD DEPOSITION OF  
SELECTED MATERIAL FILMS

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§ Group Art Unit: 2829  
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§ Examiner: Lisa Kilday  
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§ Atty. Docket: 95-0716.01  
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REPLY TO THE EXAMINER'S ANSWER DATED JANUARY 13, 2004

Mail Stop Appeal  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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3/15/04  
Date

*Susan Jerome*  
Signature

Dear Sir:

Applicants herein respond to the Examiner's Answer dated January 13, 2004.

I. Section 7 of Examiner's Answer

Section 7 of the Examiner's Answer addresses the grouping of claims and contains an announcement from the Examiner that the claims stand or fall together due to Applicants' failure to state otherwise. Applicants alert the Board that the Examiner's announcement and reasoning are erroneous. Applicants direct the Board to section VII of the Appeal Brief, which expressly states that the claims do not necessarily fall together. Applicants also direct the Board to the end of part VIII(B) of the Appeal Brief for an explanation as to why the claims do not necessarily fall together. (Appeal Brief at p. 7.)

## II. Section 10 of Examiner's Answer

Section 10 of the Examiner's Answer addresses the grounds of rejection. Applicants note that this section appears to be taken verbatim from the final Office Action. (*Compare* Examiner's Answer at § 10 *with* Office Action dated 4/9/03 at p. 2-4.) Accordingly, the Appeal Brief already refutes these grounds. (*See* Appeal Brief at § VIII.)

## III. Section 11 of Examiner's Answer

Section 11 of the Examiner's Answer addresses the response to Applicants' arguments and appears to be subdivided in a manner that mirrors the subdivisions of part VIII of the Appeal Brief. Applicants shall address the Answer's specific points further below. First however, Applicants summarize the latest prosecution history for the Board's benefit.

### A. Brief summary of recent prosecution history

Each of the appealed claims are limited by requiring gases having certain properties. The Specification cites argon as a non-limiting example of those gases.

As a basis for the § 102 rejections, the Examiner cited Chang's use of argon in a plasma process to deposit titanium.

Applicants argue that Chang does not disclose the properties required by the claims.

The Examiner argues that, given the similarity between the materials disclosed in Chang and one of the Specification's non-limiting examples, the claimed properties must be inherent in Chang.

Applicants contend that, under the binding case precedent of *Crown Operations Intl. v. Solutia*, it is insufficient for the Examiner to merely rely on similar materials as evidence of inherent properties. Rather, it is the Examiner's burden to demonstrate that an ordinary artisan would recognize such inherent properties.

Applicants contend that the Examiner's attempt to support inheency have failed in that they are based on either (1) Chang citations that do not support the Examiner's conclusions; or (2)

the Examiner's own understanding of the art without citation to concrete evidence in the record – a legally improper basis in light of *In re Zurko*.

Although Applicants do not believe the burden concerning inherency has shifted from the Examiner, Applicants have nevertheless refuted the notion that Chang's argon, as used in Chang's plasma process, inherently acts as required by the claims. Specifically, Applicants have pointed out that Chang itself discloses only alternate properties of argon -- such as a carrier or a pressure stabilizer-- as well as suggesting completely contradictory properties – such as a diluent.

Applicants understand the above summary to represent the gist of prosecution extending at least as far back as the Office Action dated 9/11/02 and extending forward to and including this Reply.

#### B. Specific points raised by the Examiner's Answer

Accordingly, the summary presented above is relevant to the specific points raised by the Examiner's Answer. As mentioned above, the subdivision of topics in part 11 of the Examiner's Answer appears to reflect the subdivisions of the Appeal Brief. Applicants maintain such subdivisions below.

##### 1. Examiner's Answer to part VIII(A) of the Appeal Brief

Part 11 of the Examiner's Answer begins by emphasizing that Chang discloses a PECVD process using argon and  $\text{TiCl}_4$ . (Answer at p. 6.) The Examiner then immediately concludes that Chang's method "must" operate in the same manner as the appealed claims because of the "same reactants" used and the "same method" used to form "an identical product." (*Id.*) Applicants alert the Board that the appealed claims are not necessarily limited to the  $\text{TiCl}_4$  reactant, the PECVD process, or a particular product. Further, while it is acknowledged that Chang and the Specification address argon, the Examiner is incorrect in announcing that Chang's method "must" operate in the same manner as the appealed claims. As mentioned in the summary in part A above and previously during prosecution, Chang itself refutes the Examiner by disclosing that argon acts as a carrier, a pressure stabilizer, and a diluent. (Appeal Brief at p. 3; Chang at col. 3, ln. 43; col. 11, ln. 33; col.

10, ln. 3-11; col. 1, ln. 41.) Applicants contend that the disclosed use of argon as a diluent is the exact opposite of the properties required by the relevant gas of the appealed claims. (See Specification at ¶¶[0034], [0036].)

The Examiner then appears to admit that Chang fails to expressly disclose the claimed properties. (Answer at p. 6, ln. 7-9.) Nevertheless, the Examiner argues that such properties are inherent, appearing to return to the argument that, in light of Chang and the Specification, the same reactants are used in the same method to form an identical product. (*Id.* at p. 6, ln. 10-p. 7, ln. 2.) As articulated above and previously in prosecution, the Examiner's reliance on such similarities are insufficient to support the existence of inherent teachings. (*Crown*, 62 U.S.P.Q.2d at 1922-23; see also Appeal Brief at p. 4-6.) Rather, *Crown* requires more from the party with the initial burden of proof; specifically, that party must actively demonstrate that one of ordinary skill in the art would recognize the inherent teachings. (*Crown*, 62 U.S.P.Q.2d at 1923.) Thus, in light of *Crown*, the Examiner has the initial burden to demonstrate Chang's inherent teachings and has failed to meet that burden.

Further, although the burden of proof has not yet shifted to Applicants, Applicants have nevertheless satisfied that burden by establishing that the claimed properties are not inherent in Chang's use of argon. Rather, Chang's argon has alternative and even contradictory properties in comparison to those claimed, even when Chang uses similar materials to form a similar product addressed as a non-limiting example in the Specification. (Appeal Brief at p. 3; Chang at col. 3, ln. 43; col. 11, ln. 33; col. 10, ln. 3-11; col. 1, ln. 41.)

The Examiner attempted to cite other case precedent in favor of the inherency conclusion. Specifically, the Examiner referred to two cases (without pinpoint citation) for the general proposition that inherent disclosure is possible even if there is no express disclosure. (Answer at p. 6, ln. 14-19 (citing *In re Reynolds*, 443 F.2d 384, 170 U.S.P.Q. 94 (C.C.P.A. 1971) and *In re Smythe*, 480 F.2d 1376, 178 U.S.P.Q. 279 (C.C.P.A. 1973)).) Applicants alert the Board that this general proposition is not at issue. Rather, the issue is whether the Examiner has met the burden for establishing whether Chang inherently teaches the particular matters indicated by the Examiner. The *Crown* case, as addressed above and in the Appeal Brief, indicates that the Examiner has failed to meet this burden. Applicants further note that *Reynolds* and *Smythe* address whether a specification's description of the invention inherently teaches matters that refute § 112/new matter

rejections. (*Reynolds*, 170 U.S.P.Q. at 98; *Smythe*, 178 U.S.P.Q. at 285-86.) Such is not the fact situation in the current appeal, thereby further demonstrating the inapplicability of these cases to the current facts.

The Examiner also attempted to cite section 2163.07(a) of the MPEP to support the inherency conclusion. However, that excerpt is a subsection addressing amendments to the application and merely cites *Reynolds* as allowing amending the specification to express what it inherently discloses. Thus, as with the *Reynolds* and *Smythe* cases, while the proposition is true, it has no bearing on whether Chang contains inherent disclosure, what Chang's inherent disclosure is, and whether the Examiner has satisfied the burden for demonstrating that inherent disclosure.

a) The Examiner's misinterpretation of one of Applicants' arguments

The next portion of the Answer's section 11 contains a misinterpretation of one of Applicants' arguments. Specifically, on page 7, lines 3-11 of the Answer, the Examiner interprets Applicants as arguing that Chang does not teach igniting a plasma. Applicants alert the Board that such an interpretation is erroneous. Applicants' relevant argument is that Chang attributes forming/igniting a plasma to RF energy – not to argon. (Appeal Brief at p. 3-4.) Hence, Applicants concluded that Chang's use of argon does not disclose or suggest the relevant gas property limitations in the appealed claims. (*Id.* at p. 4) Given the Examiner's initial misinterpretation of Applicants' argument, Applicants contend that the Examiner's supporting arguments on page 7, lines 4-11 of the Answer are moot.

b) The Examiner's misinterpretation of another of Applicants' arguments

The subsequent portion of the Answer's section 11 contains yet another misinterpretation of Applicants' arguments. Specifically, on page 7, line 12- page 8, line 6 of the Answer, the Examiner interprets Applicants as arguing that Chang fails to distinguish argon from reactive process gases. Applicants alert the Board that such an interpretation is erroneous. Applicants are actually suggesting the opposite – that Chang distinguishes argon from reactive process gases. More specifically, Applicants are arguing that, in disclosing plasma formation, Chang appears to direct its

teachings to applying energy to a process gas, and argon is not considered to be a process gas. (*See* Appeal Brief at p. 3-4.) Thus, Chang cannot be understood to be disclosing the relevant gas property limitations and should in fact be understood to be disclosing only the exact opposite. (*Id.*) By misinterpreting Applicants' arguments, the Examiner's statements actually support Applicants' true argument, thereby supporting the Board's reversal of the Examiner, withdrawal of the rejection, and allowance of the claims.

c) The Examiner's concluding paragraph in answer to part VIII(A) of the Appeal Brief

The Examiner subsequently repeats statements concerning (1) Chang's alleged disclosure of the same mechanism as the Specification's non-limiting example; (2) guesses concerning how Chang's method "must" operate; (3) admissions concerning Chang's failure to expressly disclose the claim limitations; and (4) argon's function in Chang's process (without citation to support). (Answer at p. 8, ln. 7-15.) Applicants have already addressed such statements above and in the Appeal Brief.

The Examiner then accuses Applicants as merely labeling a process gas and argues the Specification gives no special meaning to the relevant claim terms. (Answer at p. 8, ln. 15-17.) Applicants direct the Board to paragraph [0042] of the Specification, which does in fact give special meaning to the claim terms. Applicants also cite paragraphs [0034]-[0036], which distinguish the properties relevant to the exemplary embodiments from the properties relevant to prior art methods. Specifically, ¶[0035] of the Specification addresses prior art's use of gas as a carrier. (*See also* Chang at col. 3, ln. 43; col. 11, ln. 33.) More significantly, ¶[0034] addresses prior art's use of gas as a diluent/reaction inhibitor. (*See also* Chang at col. 1, ln. 41.) Accordingly, ¶ [0036] discusses how special it was to discover the contrary properties addressed in the exemplary embodiments. Paragraph [0042], then, specifies the properties of particular embodiments within the scope of the invention, using terms found in the appealed claims.

The Examiner concludes this section by returning to the argument that, because Chang's materials and final product are the same as the non-limiting example in the Specification, Chang's argon must inherently exhibit the claimed properties. (Answer at p. 8, ln. 17-p. 9, ln. 3.) Applicants have already refuted this argument above and in the Appeal Brief.

## 2. Examiner's Answer to part VIII(B) of the Appeal Brief

The Examiner subsequently attempts to address the "supplemental arguments" raised in the Appeal Brief. (Answer at p. 9.) The Examiner begins by attempting to address the binding case precedent of **Crown**. Unfortunately, the Examiner does so by merely announcing that **Crown** involved a different fact pattern. (Answer at p. 9, ln. 7-8.) The Examiner provides no details supporting this conclusion. Applicants, on the other hand, have provided details supporting the analogy between the current facts and those in **Crown**. (Appeal Brief at p. 4-6.) Applicants submit that the Appeal Brief's analysis is more persuasive than the Examiner's bare conclusion.

The Examiner then once again announces that Chang inherently discloses the claimed properties. (Answer at p. 9, ln. 8-9.) However, such an announcement is legally improper in light of **Crown** -- the very case the Examiner just failed to distinguish.

The Examiner subsequently characterized Applicants' argument as being based on labels. (Answer at p. 9, ln. 9-11.) Applicants submit that the text in part III(B)(1)(c) above establishes that the relevant argument highlights properties that are special, surprising, and contradictory to the properties used in prior art, including the very Chang reference used by the Examiner.

The Examiner then makes yet another announcement that Chang inherently discloses the claimed properties. (Answer at p. 9, ln. 11-12.) However, such an announcement is still legally improper in light of **Crown** regardless of how many times the Examiner repeats it.

The Examiner concludes by addressing the Chang/Mueller combination. (Answer at p. 9, ln. 13-20.) In doing so, the Examiner makes another announcement concerning what is inherent in a process without citation to support. Such an announcement is legally improper in light of **Crown** and **Zurko**, 59 U.S.P.Q.2d at 1697 (prohibiting the PTO from simply reaching conclusions based on its own understanding or experience and instead requiring the PTO to "point to some concrete evidence in the record" to support its findings concerning aspects of the technology). As a result, Applicants contend that such a baseless statement in no way furthers the Examiner's position.

### 3. Examiner's Answer to part VIII(C) of the Appeal Brief

Next, the Examiner attempted to address Applicants' arguments countering the Examiner's responses raised previously during prosecution. (Answer at p. 10.)

#### a) Part 1

The Examiner begins part one of this section by referring to and repeating previously raised arguments. Specifically, the Examiner announces that Chang discloses argon, the Specification discloses argon as non-limiting support for the claims, and argon is inert. (Answer at p. 10, ln. 3-7.) Applicants do not argue those announcements.

However, the Examiner then argues that a charged species producer gas results from the use of RF power, citing a portion of Chang and then attempting to directly quote from that citation. (*Id.* at ln. 7-12 (citing Chang at col. 1, ln. 56-67).) Applicants contend that a careful reading of the plain language from that Chang excerpt does not support the Examiner's interpretation. Applicants interpret that excerpt as generally addressing PECVD, with the greatest detail concerning plasma composition being the cited reference to ions and gas molecules. Applicants submit that nowhere in the cited excerpt is there an express or inherent teaching concerning a chemically inert charged species producer gas, nor is there such teaching in the next excerpt cited by the Examiner -- Chang's col. 2, ln. 1-4. (Answer at p. 10, ln. 14.) Applicants have in fact already addressed this portion of Chang, demonstrating that this excerpt actually supports Applicants' arguments. (See Appeal Brief at p. 3-4, 11, 12, and 13.) Applicants have also already addressed the text relevant to the Examiner's subsequent citation to Chang's FIG. 5. (See Appeal Brief at p. 3, 5, 9, 10, 11 (addressing Chang's col. 11, ln. 32-36).) As a result, Applicants contend that the Examiner's conclusion (Answer at p. 10, ln. 16-17) is untenable.

The Examiner next attempts to excuse the failure to comply with *Zurko*. Specifically, the Examiner's basis for doing so is the fact that the Examiner is relying on prior art and inherent teachings. (Answer at p. 10, ln. 20.) Applicants reiterate that the Examiner's interpretation of prior art does not match the express language cited to the extent necessary to support rejection, as addressed above and in the Appeal Brief. Applicants further reiterate that the Examiner's



announcements concerning inherent teachings fail to comport with the binding case precedent standards of **Crown**. This failure is demonstrated once again with the Examiner's announcement concerning the burdens of proof at the conclusion of this section. (Answer at p. 10-11.)

#### b) Part 2

Part 2 of this section of the Answer attempts to address the points raised in part VIII(C)(2) of the Appeal Brief. (Answer at p. 11.) The Examiner (1) attempted to interpret Applicants' argument; (2) announced that argument to be moot; (3) cited discussion provided previously in the Answer; and (4) attempted to interpret Chang. (Answer at p. 11, ln. 3-7.) Applicants (1) invite the Board to review the original argument rather than rely upon the Examiner's interpretation; (2) contend the substance of that argument demonstrates its relevance; (3) cite Applicants' refutation of the Examiner's points, provided above and in the Appeal Brief; and (4) contend the Examiner's interpretation of Chang fails to reflect its plain language and fails to be adequately supported as an inherent teaching (*see Crown*).

#### c) Part 3

Part 3 of this section of the Answer attempts to address the points raised in part VIII(C)(3) of the Appeal Brief. (Answer at p. 11.) The Examiner's points in favor of assuming the appealed claim terms are interchangeable appear to ignore the very argument the Examiner attempts to refute. Applicants' arguments cite support in the Specification (and from binding case precedent) demonstrating that the terms are different even though argon may exhibit any one or combination of the claimed properties depending on the circumstances. (*See* Appeal Brief at p. 9-10.) As for the Examiner arguing that the claim terms are labels, Applicants already addressed that above in part III(B)(1)(c). The Examiner then interprets Chang in a manner that is supported by neither Chang's express language nor an adequate showing under **Crown** of Chang's inherent teachings. In fact, Chang's express teachings suggest only alternate properties (as a carrier or pressure stabilizer) or contradictory properties (as a diluent). Applicants have indicated this previously (see above at part III(B)(1) and Appeal Brief at p. 3), thereby refuting the Examiner's conclusion in this section.

#### d) Part 4

Part 4 of this section of the Answer attempts to address the points raised in part VIII(C)(4) of the Appeal Brief. (Answer at p. 12.) This part once again contains the Examiner's conclusion that Chang's argon discloses at least one of the claimed properties when in fact Chang's express teachings fail to disclose so, Chang's express teachings disclose only alternate or contradictory properties (Reply at III(B)(1) above), and the Examiner has failed to support relevant inherent teachings in Chang (*id.*; *Crown*). Hence, Applicants' argument is not moot and the Examiner's statements fail to refute that argument.

#### e) Part 5

Part 5 of this section of the Answer attempts to address the points raised in part VIII(C)(5) of the Appeal Brief. (Answer at p. 12.) The Examiner concludes Applicants' arguments are unpersuasive for reasons provided in earlier in the Answer. Applicants submit the Board will find the arguments persuasive for the reasons stated earlier in this Reply and in the Appeal Brief.

#### f) Part 6

Part 6 of this section of the Answer attempts to address the points raised in part VIII(C)(6) of the Appeal Brief. (Answer at p. 12.) This part yet again contains the Examiner's oft-repeated conclusion that Chang's argon discloses at least one of the claimed properties when, for reasons repeatedly stated previously, Chang's express teachings fail to disclose so, Chang's express teachings disclose only alternate or contradictory properties, and the Examiner has failed to support relevant inherent teachings in Chang. (Reply at III(B)(1) above.)

Curiously, the Examiner then accuses Applicants of having failed to claim the properties of the relevant inert gas. (Answer at p. 12, ln. 15-16.) Applicants alert the Board that this is precisely what Applicants have been claiming since before prosecution began. Specifically, the appealed claims are part of the parent application's original Specification. Hence, as far back as the priority

date, claims 13-18 have always been limited to a gas having a property of a charged species producer; claims 22-23 have always been limited to a gas having a property of excitation; claims 24-26 have always been limited to a gas having an energy transfer property; and claim 28 has always been limited to a gas having a property of a collider. As a result, the Examiner's conclusion regarding what Chang cannot fail to teach is moot and untenable. Further, the Examiner's conclusion concerning Chang's inherent teachings suffer the usual problems given **Crown's** holding, as discussed repeatedly above.

#### g) Part 7

Part 7 of this section of the Answer attempts to address the points raised in part VIII(C)(7) of the Appeal Brief. (Answer at p. 12.) The Examiner returns to the issue concerning whether Chang considers argon to be a process gas. The Examiner referred to arguments previously provided in the Answer. Applicants presume the Examiner is referring to the arguments on page 7 of the Answer, where the Examiner inadvertently agreed with Applicants. To the extent the Examiner's interpretation of Chang excerpts in this section contradict the Examiner's and Applicants earlier reasoning, Applicants contend that these latest interpretations are untenable.

#### 4. Examiner's Answer to part VIII(D) of the Appeal Brief

The Examiner subsequently attempted to respond to the matters in part VIII(D) of the Appeal Brief. (Answer at p. 13.) However, that part of the Appeal Brief contains the conclusions for all of the arguments previously presented. Accordingly, the Examiner's statements in this portion of the Answer are in the nature of conclusions, which Applicants have refuted above and in the Appeal Brief.

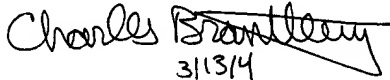
#### IV. Conclusion

The Examiner's Answer demonstrates a reliance on Chang's use of argon in a plasma CVD process. Applicants submit such reliance is insufficient to reject the claims under §102.

Although one of the Specification's exemplary embodiments also uses argon -- and thereby supports the claim references to inert gas -- Chang fails to express the claimed properties that further limit those gases. According to binding case precedent, the Chang/Specification similarity of materials alone does not demonstrate the claimed properties are inherent. (*Crown*, 62 U.S.P.Q.2d at 1922-23.) The Examiner has cited insufficient additional evidence, if any, to demonstrate that the claimed properties are inherent in Chang.

Even though the burden for refuting inherency has not shifted, Applicants have nevertheless cited Chang's expression of alternate properties of argon in effect during Chang's process -- as a carrier and pressure stabilizer. Applicants have further cited a property argon exhibited during Chang's process that is completely contradictory to the property limitations of the claimed inert gases -- as a diluent. As a result, not only has the Examiner failed to satisfy the burden for rejection, Applicants contend the Examiner cannot meet that burden relying on Chang. The Examiner's repetition of the argument concerning similarity of materials does not cure that failure, nor does the Examiner's ignoring binding case precedent. As a result, Applicants respectfully repeat the request that the Board reverse the Examiner, withdraw the rejections, and allow the claims.

Respectfully submitted,

  
3/13/14

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